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PLANETARY PHENOMENA FOR JANUARY AND FEBRUARY, 1914.

By Malcolm McNeill.

PHASES OF THE MOON, PACIFIC TIME.

First Quarter	Jan. 4,	$5^{h}\ 9^{m}$ A.M.	First Quarter	Feb. 3,	$2^{h}\ 33^{m}$ A.M.
Full Moon	" 11,	9 9 P.M.	Full Moon	" 10,	9 35 P.M.
Last Quarter	" 18,	4 30 P.M.	Last Quarter	" 17,	1 23 A.M.
New Moon	" 25,	10 34 P.M.	New Moon	" 24,	4 2 P.M.

There will be four eclipses during 1914, two of the Sun and two of the Moon.

The first of these is an annular eclipse of the Sun on February 24. No part of this will be visible from any part of the United States. The eclipse region lies almost wholly in the southern hemisphere, only a very small portion being north of the equator. The eclipse may be seen as a partial one from a part of New Zealand and a small portion of South America. These are the only places from which it may be seen even as partial, except a few small islands in the South Pacific.

The Earth is in perihelion and reaches its least distance from the Sun about noon of January 3d.

Mercury is a morning star on January 1, rising a little less than an hour before sunrise, and is therefore hardly visible to the naked eye at that time. It is rapidly approaching the Sun and passes superior conjunction on the night of January 24th-25th, becoming a morning star. It then moves away from the Sun and by the end of the first week in February it sets about an hour after sunset. It reaches its greatest east elongation, 18° 8′, on February 22d, and will then remain above the horizon about an hour and one half after sunset. This interval diminishes about a quarter of an hour by the end of the month, but for the last three weeks in February it may be seen low down near the western horizon in the evening twilight. The distance from the Sun is somewhat less than the average at time of greatest elongation, as this occurs about a day after perihelion passage. It is in conjunction with *Venus* on January 13th, with *Jupiter* on January 22d, and with *Uranus* on January 26th.

Venus is not well situated for observation during the two months' period on account of its proximity to the Sun. It is a morning star on January 1st, rising about forty minutes before sunrise. The distance from the Sun diminishes rapidly and the planet passes superior conjunction on February 11th. It then becomes an evening star and will remain such until the end of November, but will not be far enough away from the Sun for easy naked-eye view until about the middle of March. It is in conjunction with *Mercury* on January 13th, with *Jupiter* on January 25th, and with *Uranus* on January 30th.

Mars is in the best position for observation since the autumn of 1911. It comes to opposition with the Sun on January 5th, and is then above the horizon throughout the entire night. By the end of February it will set about two hours before sunrise. It is in the constellation *Gemini,* and on January 1st is about 7° west of the first-magnitude star *Pollux* (β *Geminorum*). Its motion among the stars is then westward, retrograde, and this will continue until February 12th, the distance traversed being about 12°. Its direct motion then begins and by the end of the month it will have moved about 2° eastward. During January and February its distance from the Earth will increase by about thirty millions of miles and its brightness will diminish rather more than one half. The present opposition is decidedly an unfavorable one, as the least distance of *Mars* from the Earth is at this time a little less than fifty-eight millions of miles. This is ten millions greater than it was at the opposition of 1911 and nearly twenty-two millions greater than it was at the favorable opposition of 1909. The next opposition, however, will be still more unfavorable, as the least distance will be nearly sixty-two millions of miles. The brightness of the planet at the present opposition is only about two thirds of that at the opposition of 1911 and only two fifths of that at the opposition of 1909, but is nearly one fifth greater than it will be at the next opposition in 1916. The next favorable opposition will not occur until 1924. The interval from one opposition to the next varies about a month and a half, being least when the oppositions are unfavorable, as is the case between the present one and the one next following. The interval will be only 766 days, while that between the oppositions of 1907 and 1909 was 811 days.

Jupiter is not in good position for observation. On January 1st it is an evening star, setting a little more than an hour after sunset, but its apparent distance from the Sun diminishes rapidly, and it comes to conjunction with the Sun on January 20th. It then becomes a morning star, and by the end of February it rises rather more than an hour before sunrise. It may therefore be seen for a few days at the beginning and end of the period.

Saturn passed opposition with the Sun early in December, and is therefore in good position for evening observation. It remains above the horizon until after 5 A. M. on January 1st, and until after 1 A. M. on February 28th. It is in the constellation *Taurus* north and east of the first-magnitude star *Aldebaran*. It moves westward about 2° until February 11th and then moves slowly eastward. As seen in the telescope the ratio of minor to major axis of the rings is about 44 per cent, nearly the maximum.

Uranus is in bad position for observation, as it comes to conjunction with the Sun on January 27th, being an evening star until that date and a morning star afterward, but too near the Sun for naked-eye observation throughout the two months.

Neptune is in opposition to the Sun on January 17th, and is then in the range of vision throughout the entire night. It is on the border-line between the constellations *Gemini* and *Cancer*.

(SEVENTY-EIGHTH)[1] AWARD OF THE DONOHOE COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Monsieur A. SCHAUMASSE, of Nice, France, for the discovery of an unexpected comet on May 6, 1913.

Committee on the Comet-Medal:
W. W. CAMPBELL,
S. D. TOWNLEY,
H. D. CURTIS.

(SEVENTY-NINTH) AWARD OF THE DONOHOE COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Rev. J. H. METCALF, of Taunton, Massachusetts, for the discovery of an unexpected comet on September 1, 1913.

Committee on the Comet-Medal:
W. W. CAMPBELL,
S. D. TOWNLEY,
H. D. CURTIS.

(EIGHTIETH) AWARD OF THE DONOHOE COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Monsieur G. NEUJMIN, of Simeis, Russia, for the discovery of an unexpected comet on September 3, 1913.

Committee on the Comet-Medal:
W. W. CAMPBELL,
S. D. TOWNLEY,
H. D. CURTIS.

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[1] The three Comet-Medal awards made on November 30, 1912, and announced in these *Publications* (Volume XXIV, page 268), were inadvertently given numbers too small by one. They should be numbered respectively (Seventy-fifth), (Seventy-sixth), and (Seventy-seventh).